



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
State Revolving Fund Loan Program
L & C Tower, 8th Floor
401 Church Street
Nashville, TN 37243

FINDING OF NO SIGNIFICANT IMPACT
Approval of Facilities Plan
Jellico (Campbell County), Tennessee
Loan No. DWA 2009-084

July 29, 2009

The National Environmental Policy Act requires federally designated agencies to determine whether a proposed major agency action will significantly affect the environment. One such major action, defined by the Safe Drinking Water Act (SDWA), is the approval of a facilities plan prepared pursuant to EPA 816-R-97-005, Final Guidelines. In making this determination, the State Revolving Fund Loan Program assumes that all facilities and actions recommended by the plan will be implemented. The State's analysis concludes that implementing the plan will not significantly affect the environment; accordingly, the State Revolving Fund Loan Program is issuing this Finding of No Significant Impact (FNSI) for public review.

The City of Jellico has completed the facilities plan entitled "Water Treatment Plant Raw Water Source Well Head & Old City Water Tank Rehabilitation" dated February 2009. The facilities plan provides recommendations to develop an additional source of raw water and increase system storage capacity. This project will consist of installing 9,370 linear feet (LF) of 8-inch diameter transmission line from two new wells indicated on the attached figure to the existing South Reservoir and placing back into service the existing Old City Tank for additional storage capacity. The total estimated project cost is \$1,543,100. A combination of American Recovery and Reinvestment Act of 2009 (ARRA) funds and a Drinking Water State Revolving Fund (DWSRF) loan in the amount of \$1,350,000 has been requested for this project. This project will be funded with a \$810,000 loan, \$540,000 in principal forgiveness that will not have to be repaid by the City, and a \$193,100 Appalachian Regional Commission (ARC) grant.

Attached is an Environmental Assessment containing detailed information supporting this action. Comments supporting or disagreeing with this proposed action received within 30 days of the date of this FNSI will be evaluated before we make a final decision to proceed.

If you wish to comment or to challenge this FNSI, send your written comment(s) to:

Mr. Sam R. Gaddipati, Environmental Manager
State Revolving Fund Loan Program
L & C Tower, 8th Floor
401 Church Street
Nashville, TN 37243

or contact him by telephone at (615) 532-0445 or by e-mail at sam.gaddipati@tn.gov.

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A. PROPOSED FACILITIES AND ACTIONS; FUNDING STATUS

The City of Jellico has completed the facilities plan entitled "Water Treatment Plant Raw Water Source Well Head & Old City Water Tank Rehabilitation" dated February 2009. The facilities plan provides recommendations to develop an additional source of raw water and increase system storage capacity. This project will consist of installing 9,370 linear feet (LF) of 8-inch diameter transmission line from two new wells as indicated on the attached figure to the existing South Reservoir and placing back into service the existing Old City Tank for additional storage capacity. The project location is indicated on Figure No. 1 of this Environmental Assessment. Descriptions of the proposed facilities and actions included in this project are listed below:

FUNDING STATUS

The facilities described above comprise the scope of the Loan No. DWA 2009-084 scheduled for funding in fiscal year 2010. The estimated project costs are summarized in the following tabulation:

<u>PROJECT CLASSIFICATIONS</u>	<u>COSTS (\$)</u>
Administrative & Legal	8,000
Land Costs & Appraisals	18,000
Planning Fees	9,100
Design Fees	76,000
Engineering Basic Fees	30,000
Other Engineering Fees	32,000
Resident Inspection	36,000
Construction and Equipment	1,205,000
Miscellaneous	8,500
Contingencies	120,500
TOTAL	1,543,100
Loan	1,350,000
ARC Grant	193,100
Amount Designated for Principal Forgiveness (Will not have to be repaid)	540,000

The City has requested \$1,350,000 in a combination of American Recovery and Reinvestment Act of 2009 funds and a Drinking Water State Revolving Fund (DWSRF) loan for this project. This project will be funded with a \$810,000 loan and \$540,000 in principal forgiveness that will

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not have to be repaid by the City. Additional funding is \$193,100 in an Appalachian Regional Commission (ARC) Grant.

B. EXISTING ENVIRONMENT

The City of Jellico's Planning Area is located in Campbell County in the eastern part of Tennessee. Existing environmental features are described below:

SURFACE WATERS

The Jellico Planning Area is located within the Upper Cumberland River drainage basin. The area is bisected by Elk Creek, which flows from the southwest to join Clear Fork, at a point in Kentucky just northeast of the city limits. The planning area also includes tributaries of the two streams (Croaches Creek, Indian Creek, and Mud Creek) as well as several small lakes formed as a result of strip mine reclamation. All the streams in the planning area are classified for fish and aquatic life, irrigation, and livestock watering and wildlife. The City of Jellico provides drinking water within the city limits and surrounding areas of Campbell County in Tennessee and Whitley County in Kentucky. The water treatment plant has a design capacity of 0.8 million gallons per day (MGD) and the raw water intake is located on South Lake approximately one mile south of Indian Mountain State Park.

GROUNDWATER

Groundwater in the Jellico area occurs chiefly in fractures in noncalcareous Pennsylvanian sandstones and shales. Where deformation occurs, strata are inclined and disrupted and water flows freely in open fractures that extend to considerable depths. Water supplies in wells are principally controlled by these fractures. Recorded well depths in Campbell County range from 15 to 1500 feet. The chemical quality of the groundwater in Campbell County is generally good.

SOILS

The soils in the Jellico area fall into two main classifications. Muskingum, Jefferson, and Barbourville soils are found on hillsides and in the higher elevations. Philo, Atkins, and Jefferson soils are found in the lower elevations. Soil cover on the Cumberland Plateau is generally acid, very well drained, and considered thin with a maximum depth of six feet and an average depth of two feet or less. Bedrock shales and sandstones are fairly impermeable and crop out in many places. Precipitation does not penetrate deeply into the ground. Subsurface runoff is high because of the thin soil cover.

The rocks of the Cumberland Plateau occur in alternating sequences of clay shales, quartz-cemented sandstones, and conglomeratic sandstones. Coal seams are distributed through the rocks at various levels. In general, the rocks are not much deformed, although there are areas of deformation along the route of Interstate Highway 75 to the southwest end of Elk Valley.

TOPOGRAPHY

The Jellico Planning Area is within the geographic province known as the Cumberland Plateau. The relief in northern Campbell County is sharp enough to be considered mountainous. In the Jellico area, the Plateau is cut by a valley along Elk Creek which crosses the planning area from

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southwest to northeast. As a result, the elevations in the Planning Area vary drastically, ranging from 2,200 feet above Mean Sea Level (MSL) on Jellico Mountain at its western edge and 2,100 feet above MSL on Pine Mountain on its eastern edge, to as little as 960 feet in Indian Mountain State Park.

OTHER ENVIRONMENTAL FEATURES

Indian Mountain State Park is located in the Planning Area. This project will not affect the state park. No additional wild or scenic rivers, or unique, scientific, or natural areas exist in the Jellico Planning Area.

C. EXISTING WATER FACILITIES

The raw water intake for the City's Water Treatment Plant (WTP) lies on a dual reservoir system that encompasses Indian Mountain Reservoir, owned by the State of Tennessee, and the South Lake, owned by the City of Jellico, that are located within and adjacent to Indian Mountain State Park, respectively. The two reservoirs are separate entities and are connected by a 36-inch diameter corrugated culvert. Runoff from the Indian Mountain drainage basin supplies water to Proctor Hollow Creek and is eventually collected in the two reservoirs. Elk Creek runs adjacent to the reservoirs and is connected to the South Lake with a 12-inch ductile iron pipe that has a 12-inch gate valve and is used to add flow to the reservoirs as needed. A 6-inch diameter raw water well located on Dairy Street adjacent to the Indian Mountain State Park, can supply 200 gallons per minute (gpm) of groundwater to the South Lake. This well operates only when water levels in the reservoir become low and an additional water source is needed. The raw water intake on Jellico's reservoir has three pumps that supply raw water to the WTP. The WTP consists of a two-tank Trident TR420 package plant. Each tank contains an upflow clarifier and mixed media filtration. The filtered water is then chlorinated and discharged to a baffled clearwell located beneath the plant. High service pumps discharge the treated water to the distribution system. The WTP was constructed in 1999 and has a design capacity of 1.5 MGD. The distribution system consists of approximately 675,000 LF of ductile iron, asbestos cement, cast iron, and galvanized iron transmission main and distribution mains ranging from 2-inches to 12 inches in diameter. There are three storage tanks currently in service—the New City Tank with a capacity of 750,000 gallons; the Oswego Tank with a capacity of 250,000 gallons; and the Sand Gap Tank with a capacity of 250,000 gallons.

D. NEED FOR PROPOSED FACILITIES AND ACTIONS

Recent drought conditions have stressed the Jellico raw water source reservoirs to the point that there has been a significant decline in the quantity of available raw water. Reduced rainfall has greatly diminished the amount of runoff that would typically replenish the water in Indian Mountain Lake and subsequently the South Lake. The two lakes typically have a combined 36.75 million gallons of storage which is an approximate 46-day supply. The water levels in the lakes dropped so low in 2007 and 2008 that the water surface elevation was below the invert of the 36-inch culvert pipe that connects the two lakes. A system-wide emergency water conservation plan was put into effect for all customers. Additionally, raw water quality declined during the drought conditions which reduced the capability of the WTP to produce water for

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consumption. The City also needs additional water storage capacity to handle daily demand and ensure adequate fire protection. The City needs additional raw water sources and additional storage capacity for finished water.

Existing and projected facility conditions are shown in the following chart:

EXISTING AND PROJECTED FACILITY CONDITIONS

<u>POPULATION</u>	<u>EXISTING (2009)</u>	<u>PROJECTED (2029)</u>
City of Jellico	2,250	2,375
Percent Served	90 %	95 %
Service Area Excluding Jellico	1,360	2,335
Percent Served	35 %	65 %
Total Planning Area	3,610	4,710
Percent Served	69 %	82 %

<u>WATER NEEDS (MGD)</u>	<u>EXISTING (2009)</u>	<u>PROJECTED (2029)</u>
Residential	0.5	2.2
Commercial/Industrial	0.1	0.25
Loss	0.25	0.12
TOTAL	0.85	2.57

E. ALTERNATIVES ANALYSIS

Several alternatives were evaluated in the February 2009 Facilities Plan. Discussions of the evaluation of these alternatives and the recommended plan are following:

ALTERNATIVES FOR ADDITIONAL RAW WATER SOURCES

No-Action

Taking no action would mean that Jellico would not have an adequate amount of raw water to be treated and thus not have an adequate supply of finished water for the population of Jellico. Thus the no-action alternative is not feasible.

Construction of a new WTP

This alternative would involve constructing a new 0.4 MGD WTP at a new raw water well. The new WTP would use the groundwater from the new well as a raw water source for treatment. This would require a well pump, piping to transmit the raw water to the new WTP, ozone treatment and filters. A small storage tank would also be included to achieve the regulatory contact time for chlorination. The water, after filtration and chlorination, would be pumped

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directly to the water distribution system. This is not the most cost-effective alternative and is rejected.

Purchase Finished Water

This alternative would involve entering into a water purchase agreement with LaFollette Utilities to purchase finished water. Before this water purchase could take place, a large-scale capital system project would have to be implemented. A large amount of new piping would have to be installed to convey the water from LaFollette to Jellico. This piping would have to be at least 12 inches in diameter and have a high pressure rating. Due to the length of pipeline and pumping required, additional chlorination would be necessary before the purchased water could be utilized. This is not the most cost-effective alternative and is rejected.

Two New Wells And Raw Water Transmission Line

This alternative would involve installing two new raw water wells indicated as Well No. 3 and Well No. 5 on the attached location map and approximately 9,370 LF of 8-inch diameter raw water transmission line to connect the two new wells and pump the raw water produced by these wells to the existing South Lake for treatment at the existing WTP. This is the most cost-effective alternative and is selected.

ALTERNATIVES FOR STORAGE

No Action

Taking no action would mean that Jellico would continue to operate with inadequate storage capacity meaning that the WTP's high service pumps will operate for long periods of time to meet the demand and that adequate fire protection may not be provided. Existing tanks could not be taken out of service for maintenance.

Construction of a New Tank at the Old City Tank Site

This alternative would involve demolishing the existing 500,000-gallon Old City water storage tank which was taken out of service in 1993 and constructing a new tank with the same capacity at this location. This is not the most cost-effective alternative and is rejected.

Construction of a New Tank at a New Location

This alternative would involve construction of a new 500,000-gallon tank at a new site. In addition to the cost of the new tank, the City would also have to purchase the new site. This is not the most cost-effective alternative and is rejected.

Rehabilitate Old City Tank

This alternative would involve rehabilitating and placing back into service the 500,000-gallon Old City water storage tank which was taken out of service in 1993. The City already owns the site and has an easement for access. The concrete tank would be rehabilitated internally and externally. This is the most cost-effective alternative and is selected.

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F. ENVIRONMENTAL CONSEQUENCES; MITIGATIVE MEASURES

The environmental benefits of this project will be the improvement of water quality conditions in the area.

During the construction phase, short-term environmental impacts due to noise, dust, mud, disruption of traffic, runoff of silt with rainfall, etc., are unavoidable. Minimization of these impacts will be required; however, many of these minimization measures will only be temporary. Using the following measures to prevent erosion will minimize impacts on the environment:

1. Specifications will include temporary and permanent measures to be used for controlling erosion and sediment.
2. Soil or landscaping maintenance procedures will be included in the specifications.
3. The contractor will develop an Erosion Control Plan. It should contain a construction schedule for each temporary and permanent measure controlling erosion and sediment. It should include the location, type, and purpose for each measure and the times when temporary measures will be removed or replaced.

These measures, along with requiring the contractor to return the construction site to as-good-as or better-than its original condition, will prevent any adverse impacts due to erosion.

A Section 10 and/or a Section 404 Permit will be obtained from the U.S. Army Corps of Engineers, if required, prior to the start of construction.

G. PUBLIC PARTICIPATION; SOURCES CONSULTED

A Public Meeting was held on July 16, 2009, 6:00 p.m., local time. The selected plan for new raw water sources and additional storage capacity and user charges were described to the public, and their input was received. This agency is not aware of any unresolved public objections that may have been voiced before or after the public meeting regarding this project.

The existing user charges are sufficient to repay the DWSRF loan. Therefore, no incremental increase in user charges will be required.

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Sources consulted about this project for information or concurrence were:

1. Tennessee Department of Agriculture
2. Tennessee Department of Economic and Community Development
3. Tennessee Department of Environment and Conservation (TDEC), Division of Air Pollution Control
4. Tennessee Department of Transportation
5. TDEC, Division of Groundwater Protection
6. Tennessee Historical Commission
7. TDEC, Division of Archaeology
8. TDEC, Division of Natural Areas
9. TDEC, Division of Solid Waste Management
10. TDEC, Division of Water Pollution Control
11. TDEC, Division of Water Supply
12. Tennessee Wildlife Resources Agency
13. United States Army Corps of Engineers
14. United States Fish and Wildlife Service
15. City of Jellico
16. Campbell County
17. McGill and Associates, Knoxville, TN

H. SPECIAL CONDITIONS

The State Revolving Fund loan agreement will have the following special condition:

A Section 10 and/or a Section 404 Permit will be obtained from the U.S. Army Corps of Engineers, if required, prior to the start of construction.